WHAT IS CLAIMED IS:

1. A tape reel assembly for use in a tape drive system for winding and unwinding storage tape, the tape reel assembly comprising:

a plastic hub defining a tape winding surface;

wherein the hub is formed of microcellular foam.

2. The tape reel assembly of claim 1, wherein the microcellular foam is selected from the group consisting of microcellular polycarbonate foam, microcellular glass-filled polycarbonate foam, microcellular carbon-filled polycarbonate foam, microcellular styrene acrylonitrile foam, microcellular polystyrene foam, microcellular acrylonitrile butadiene styrene foam, microcellular acetal foam, microcellular nylon foam, microcellular poly-ether-ether-ketone foam, microcellular polyetheramide foam, microcellular polypropylene foam, microcellular polyethylene foam, and microcellular polyester foam.

3. The tape reel assembly of claim 1, wherein the microcellular foam has a cell size of between 5 and 50 micrometers.

4. The tape reel assembly of claim 1, wherein the tape winding surface has an average total waviness of less than 1000 micro-inches.

5. The tape reel assembly of claim 1, wherein the tape winding surface has an average total waviness of less than 500 micro-inches.

6. The tape reel assembly of claim 1, wherein the tape winding surface has an average total waviness of approximately 150 micro-inches.

7. The tape reel assembly of claim 1, wherein the tape winding surface has a radial total indicator run-out of less than 700 micro-inches.

8. The tape reel assembly of claim 1, wherein the tape winding surface has a radial total indicator run-out of approximately 500 micro-inches.

9. The tape reel assembly of claim 1, wherein the hub has a thickness of between 0.05 to 0.2 inch.

10. The tape reel assembly of claim 1, wherein the hub has a thickness of between 0.07 to 0.125 inch.

11. The tape reel assembly of claim 1, wherein the hub has a thickness of approximately 0.1 inch.

12. The tape reel assembly of claim 1, wherein the tape reel assembly further includes:

an upper flange; and

a lower flange, the upper and lower flanges coupled to and extending in a radial fashion from opposing ends of the hub.

13. The tape reel assembly of claim 12, wherein at least one of the upper flange and the lower flange is formed of microcellular foam.

14. A data storage tape cartridge comprising:

a housing defining an enclosed region;

at least one tape reel assembly rotatably disposed within the enclosed region and including:

a hub defining a tape winding surface; and

a storage tape wound about the tape winding surface;

wherein the hub is formed from a microcellular foam.

15. The data storage tape cartridge of claim 14, wherein the tape winding surface has an average total waviness of less than 500 micro-inches.

16. The data storage tape cartridge of claim 14, wherein the tape winding surface has an average total waviness of approximately 150 micro-inches.

17. The data storage tape cartridge of claim 14, wherein the tape winding surface has a radial total indicator run-out of less than 700 micro-inches.

18. The data storage tape cartridge of claim 14, wherein the tape winding surface has a radial total indicator run-out of approximately 500 micro-inches.

19. The data storage tape cartridge of claim 14, wherein the hub has a thickness of between 0.07 to 0.125 inch.